

Research Article

First authenticated record of green turtle *Chelonia mydas* (L.) from Irish waters, with a review of Irish and UK records

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INTRODUCTION

During November 2007, a live, albeit weak, juvenile female green turtle *Chelonia mydas* (L.) was found stranded at Castlegregory (52.2555° N, 10.0210° W), Dingle Peninsula, Co. Kerry, SW Ireland (Figs 1 & 2). Unfortunately, attempts to revive the specimen at Dingle Oceanworld proved unsuccessful, and the animal died within two days of receipt. The specimen was subsequently weighed, measured and donated to the National Museum of Ireland (NMINH: 2012.67.1).

The current specimen represents the first authenticated record of *C. mydas* from Irish waters. Although Frazer (1983) stated that “a single specimen of the green turtle has been recorded from the west coast of Ireland”, and Langton et al. (1996) later quoted this record, it was originally noted by Taylor (1963), based on an erroneous press report which was subsequently confirmed as a leatherback turtle *Dermochelys coriacea* (L.) by Stephen (1961) and Brongersma (1972). King and Berrow (2009) also referred to two unconfirmed records of *C. mydas* observed off Cape Clare, Co Cork. One of these specimens, measuring c.1.0 m in length, was observed 500 m off the island on 1st May 1995. No details were provided on the second record, and despite recent enquiries by the author, no further details were discovered. Details of all known records of *C. mydas* reported from Irish and UK waters are summarised in Table 1. Although initially reported as *C. mydas*, the identification and provenance of record numbers 1-4 & 6 remain equivocal. Since 1980, a total of 8 specimens

have been confirmed from the following geographical locations: Orkney (2), W Scotland (1), E Scotland (1), Lancashire (1), Essex (1), Guernsey (1), and Kerry (1) either as dead strandings (5), live strandings (2), or observed at sea (1).

Apart from record number 11 (40 kg, 86.5



Figure 1. Specimen of the green turtle *Chelonia mydas* found stranded at Castlegregory, Co Kerry during November 2007 (dorsal view).



Figure 2. Specimen of the green turtle *Chelonia mydas* found stranded at Castlegregory, Co Kerry during November 2007 (ventral view).

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Record No.	Date	Location	Method	CCL (cm)	SCL (cm)	CCW (cm)	SCW (cm)	Weight (kg)	References	Notes
1?	05.10.1874	c3.2 km S Mousehole Island Mount's Bay Cornwall	Taken alive in pilchard drift-net					32-36.00	Cornish (1874); Brongersma (1972); Penhallurick (1990)	Measurements taken from carapace of green turtle at St Michael's Mount (Penhallurick, 1990)
2?	December 1875	Off Hastings, Sussex English Channel	Found floating & dead		105.4		91.4		Bowerbank (1876); Brongersma (1972)	A female with more than a quart (1.136 litres) of eggs in it
3?	1887 or 1888	West Bay near Chesil Beach Dorset	Found floating & dead						Richardson (1889); Cambridge (1894); Brongersma (1972)	Brongersma (1972) speculated that the specimen may have been thrown overboard dead from a ship conveying it into British waters
4?	04.01.1956	Meal Beach Barra Isle Shetland	Dead strand-ing		c.91.4			c.76.20	Editors (1956); Parker (1956); Stephen, Rae and Lamont (1963); Brongersma (1972); Branson (1997)	Unidentified turtle but probably <i>Chelonia mydas</i> (Parker, 1956; Brongersma, 1972); identified from fragments (Parker, 1956) Thought to be a green turtle, but a probable, rather than a definite identification
5	27.01.1980	Loch of Stenness Orkney	Dead strand-ing		33.0		28.0	5.45	Anon (1980); Gray (1981); Branson (1997); Booth and Booth (1994); Pierpoint and Penrose (2002)	Badly decomposed (Branson, 1997)
6?	01.05.1995	Cape Clare Island Co Cork	Observed at sea		c.100.0				King and Berrow (2009)	Unconfirmed identification
7	13.01.1997	S River Reach Crouch Corner Foulness, Essex	Dead strand-ing		37.0		30.0	4.00	Branson (1997)	
8	08.07.1999	Off Firth of Forth Scotland	observed at sea						Pierpoint and Penrose (2002)	Sighted by Kees Camphuysen in the North Sea during a seabird survey
9	30.12.2001	Knot End near Blackpool Lancashire	Dead strand-ing	38.0	36.0	33.0	29.0	5.00	Penrose (2003)	Post mortem found large amounts of plastic material in oesophagus and stomach

10	25.02.2002	Achmelvich N of Loch Inver Scotland	Dead strand- ing						Penrose (2003)	
11	13.01.2003	Grand Rocques Saline Bay Guernsey	Live strand- ing	76.0	*86.5	67.5	55.5	*40.00	Penrose (2004)	*Measurements on leaving Guernsey on 05.02.2003 for subsequent release at Canaries on 04.04.2003
12	November 2007	Castlegregory, Co Kerry Ireland	Live stranding (but died 2 days later)	25.0	24.5	22.0	20.0	1.74	Present study	(NMINH: 2012.67.1)
13	13.12.2011	On beach at Newark South Ron- aldsay Orkney Islands ND468907	Freshly dead strand- ing	29.5		27.0		3.05	Booth (2012)	Immature male, good body condi- tion, no internal or external injuries - cause of death thought to be hypothermia

Table 1. Records of green turtle *Chelonia mydas* (L.) reported from Irish and UK waters.

cm SCL), most likely a sub-adult, all of the specimens were juveniles, weighing 1.7-5.5 kg (mean weight, 3.8 kg, N=5) and measuring 24.5-37.0 cm SCL (mean SCL 36.6 cm, N=4). Although one specimen was observed in the Firth of Forth (E. Scotland) during July 1999, all of the others were found stranded during the winter: November (1), December (2), January (3), and February (1).

Arnold and Ovenden (2004) noted that although *C. mydas* had been recorded from waters surrounding the British Isles, Netherlands, Belgium, France, Spain and Portugal, the species is rare in European Atlantic waters. In a recent review of French Atlantic records, Duguay (1997) remarked that *C. mydas* was rarely found in the Bay of Biscay, with a total of 6 juveniles recorded during the winter and spring. Brongersma (1972) carried out a detailed investigation of all known reports of *C. mydas* from European Atlantic waters, and in many cases noted difficulties in verifying and provenancing records.

Brongersma (1972) also noted that large numbers of green turtles were imported into European countries prior to the Second World War as a gourmet food and that many of these died during transport and were thrown overboard from ships. He concluded that very few green turtles arrived in European waters of their own accord. The paucity of incontrovertible records

since the Second World War would support this hypothesis.

The green turtle is distributed circumglobally in tropical and subtropical oceans (Carr, 1967). Although several nesting sites occur on both sides of the North and South Atlantic, as well as in the eastern Mediterranean (Arnold and Ovenden, 2004; Rees et al., 2005), the origin of naturally-occurring specimens in northern European waters is unknown.

Small juvenile green turtles are known to disperse extensively during their pelagic oceanic feeding phase, whereas larger individuals appear to feed in neritic areas closer to their natal breeding grounds (Monzon-Arguello et al., 2010). This differential ontogenetic behaviour may explain the occasional occurrence of juvenile green turtles in northern European waters, and the apparent absence of subadults and adults. Also, Witt et al. (2007) speculated that green turtles may have a greater physiological intolerance to cooling than more frequently-recorded species (e.g. leatherback turtle *Dermochelys coriacea* (L.), loggerhead turtle *Caretta caretta* (L.), and Kemp's Ridley turtle *Lepidochelys kempii* (Garman)), thus reducing their chance of survival in cooler waters.

Hybridisation has also been postulated as a factor driving green turtles to northern waters. While individual populations have been shown

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to be genetically discrete (Encalada et al., 1996), green turtles can hybridise with both loggerhead turtles and hawksbill turtles *Eretmochelys imbricata* L. (James et al., 2004; Wood et al., 1983). Although green x loggerhead hybrids have not been recorded from European waters, James et al. (2004) suggested that the loggerhead component of its genotype may have been responsible for directing the hybrid to higher (and colder) latitudes in Canadian waters.

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REFERENCES

- Anon. (1980). Green Turtle found at Stenness Loch. *The Orcadian* (13.03.1980).
- Arnold, N. & Ovenden, D. (2004). *Field Guide - Reptiles & Amphibians - Britain & Europe*. HarperCollins, London.
- Booth, C. (2012). Green Turtle *Chelonia mydas* - Reptile Report 2011. *The Orkney Naturalist - Orkney Field Club Bulletin* (2012): 65.
- Booth, C. & Booth, J. (1994). *The Mammals of Orkney - A Status with an appendix on Amphibians and Reptiles*. Chris & Jean Booth, Kirkwall, Orkney, 55pp.
- Bowerbank, J.S. (1876). Edible turtle off the Sussex coast. *Zoologist* (2) 11: 4805.
- Branson, A. (1997). Wildlife Reports - Reptiles and Amphibians. *British Wildlife* 8 (4): 250.
- Brongersma, L.D. (1972). European Atlantic Turtles. *Zoologische Verhandelingen - uitgegeven door het Rijksmuseum van natuurlijke te Leiden* 121: 1-318.
- Cambridge, O.P. (1894). Reptiles of Dorset. *Proceedings of the Dorset Natural History & Antiquarian Field Club* 15: 90-102.
- Carr, A. (1967). *So Excellent a Fishe: A Natural History of Sea Turtles*. Scribner, New York.
- Cornish, T. (1874). Turtle in Mount's Bay. *Zoologist* (2) 9: 4242.
- Duguay, R. (1997). Les tortues marines dans le Golfe de Gascogne. *Annals de la Society Science Naturelle de la Charente-Maritime* 7 (6): 633-645.
- Editors (1956). Remains of turtle washed ashore in Shetland. *Scottish Naturalist* 68 (3): 175.
- Encalada, S.E., Lahanas, P.N., Bjorndal, K.A., Bolten, A.B., Miyamoto, M.M. & Bowen, B.W. (1996). Phylogeography and population structure of the Atlantic and Mediterranean green turtle *Chelonia mydas*: a mitochondrial DNA control region sequence assessment. *Molecular Ecology* 5: 473-483.
- Frazer, D. (1983). *Reptiles and Amphibians in Britain*. Collins, London.
- Gaywood, M.J. (1997). Marine turtles in British and Irish waters. *British Wildlife* 9 (2): 69-77.
- Gray, M. (1981). The Green Turtle. *The Orkney Naturalist - Orkney Field Club Bulletin* 1: 9.
- James, M.C., Martin, K. & Dutton, P.H. (2004). Hybridization between a Green Turtle, *Chelonia mydas*, and Loggerhead Turtle, *Caretta caretta*, and the first record of a Green Turtle in Atlantic Canada. *Canadian Field-Naturalist* 118 (4): 579-582.
- King, G.L. & Berrow, S.D. (2009). Marine turtles in Irish waters. *Irish Naturalists' Journal - Special Zoological Supplement 2009*, 30pp.
- Langton, T.E.S., Beckett, C.L., King, G.L. & Gaywood, M.J. (1996). Distribution and status of marine turtles in Scottish waters. *Scottish Natural Heritage Research, Survey and Monitoring Report No. 8*, 75pp.
- Monzon-Arguella, C., Lopez-Jurado, L.F., Rico, C., Marco, A., Lopez, P., Hays, G.C. & Lee, P.L.M. (2010). Evidence from genetic and Lagrangian drifter data for transatlantic transport of small juvenile green turtles. *Journal of Biogeography* 37 (9): 1752-1766.
- Parker, H.W. (1956). Remains of turtle washed ashore in Shetland. *Scottish Naturalist* 68 (3): 175-176.
- Penhallurick, R.D. (1990). *Turtles off Cornwall, The Isles of Scilly and Devonshire*. Dyllansow Pengwella, Truro, Cornwall, UK. 95pp.
- Penrose, R. (2003). *UK & Eire Marine Turtle Strandings & Sightings Annual Report 2002*. Marine Environmental Monitoring, Ceredigion, West Wales, UK.
- Penrose, R. (2004). *UK & Eire Marine Turtle Strandings & Sightings Annual Report 2003*.

- Marine Environmental Monitoring, Ceredigion, West Wales, UK.
- Pierpoint, C. & Penrose, R. (2002). *TURTLE – a database of marine turtle records for the United Kingdom & Eire*. Marine Environmental Monitoring, Ceredigion, West Wales, UK.
- Rees, A.F., Saad, A. & Jony, M. (2005). Tagging green turtles (*Chelonia mydas*) and loggerhead turtles (*Caretta caretta*) in Syria. *Testudo* 6 (2): 51-55.
- Richardson, N.M. (1889). Notes on a few of the fish recently taken on the Chesil Beach. *Proceedings of the Dorset Natural History & Antiquarian Field Club* 10: 162-170.
- Stephen, A.C. (1961). Scottish Turtle Records 1954-1960. *Scottish Naturalist* 70: 43-47.
- Stephen, A.C., Rae, B.B & Lamont, J.M. (1963). Scottish turtle records 1960-61. *Scottish Naturalist* 71: 37-38.
- Taylor, R.H.R. (1963). The distribution of amphibians and reptiles in England and Wales, Scotland and Ireland and the Channel Isles: a revised survey. *British Journal of Herpetology* 3 (5): 95-115.
- Witt, M.J., Penrose, R. & Godley, B.J. (2007). Spatio-temporal patterns of juvenile marine turtle occurrence in waters of the European continental shelf. *Marine Biology* 151 (3): 873-885.
- Wood, J.R., Wood, F.E. & Critchley, K. (1983). Hybridization of *Chelonia mydas* and *Eretmochelys imbricata*. *Copeia* 1983: 839-842.
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